EXHIBIT 7

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/924,186	06/21/2013	Dong Ryeol SHIN	042106.0003	1551

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NSIP LAW
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EXAMINER
SHAH, MILAP

ART UNIT	PAPER NUMBER
3717	

NOTIFICATION DATE	DELIVERY MODE
01/13/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 13/924,186	Applicant(s) SHIN ET AL.	
	Examiner MILAP SHAH	Art Unit 3717	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/21/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-15* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-15* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *6/21/13* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claims 1-10 recite apparatus claims, i.e. a virtual controller client, a virtual controller server, or a remote control system, however, the claims contain elements that are not explicitly recited as structural elements of an apparatus. For instance, claim 1 recites a button setting adjusting unit, a user virtual button interface, a touch event filter, and a client message interfacing unit, of which none are explicitly defined as structural elements of an apparatus. It is indefinite if these elements are merely program code (not embodied in any particular non-transitory memory device) or are to be interpreted as structural components of the virtual controller client. Similar recitations, such as "units" and "filters" are present in one or more of claims 2-10.

Claim 9 recites "a virtual controller client" in the second limitation, however, a recitation of "a virtual controller client" exists in the previous limitation, thus it is unclear if the second recitation is the same or another virtual controller client.

The following is a quotation of 35 U.S.C. 112(d):

(d) REFERENCE IN DEPENDENT FORMS.—Subject to subsection (e), a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), fourth paragraph:

> Subject to the [fifth paragraph of 35 U.S.C. 112 (pre-AIA)], a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Claims 3, 8, & 15 are rejected under 35 U.S.C. 112(d) or pre-AIA 35 U.S.C. 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends, or for failing to include all the limitations of the claim upon which it depends. Claims 3, 8, & 15 do not further define explicit elements of their respective base claims, but rather define a new statutory class of invention which fails to further limit the respective base claim. Applicant may cancel the claim(s), amend the claim(s) to place the claim(s) in proper dependent form, rewrite the claim(s) in independent form, or present a sufficient showing that the dependent claim(s) complies with the statutory requirements.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 6-9, 11, & 13-15 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Porwal (U.S. Patent Application Publication No. 2011/0009195).

Claims 1, 4, 9, & 11: Porwal discloses a virtual controller client, the virtual controller client operating based on a mobile terminal (game controller 103), so that the virtual control client is allowed to remotely communicate with a virtual controller server running on a computer for remote key input on an application running on the computer (abstract and paragraphs 0025-0027, wherein the game controller 103

is communicatively coupled to a game system 105 operating a "virtual controller server" which is capable of transmitting layout commands), the virtual controller client comprising:

a button setting adjusting unit configured to receive button setting information including mapping relationship between key inputs to the application and virtual input messages from the virtual controller server, and to specify an arrangement and attributes of virtual buttons based on the received button setting information (paragraphs 0023-0040, wherein Porwal discloses a “button setting adjusting unit" or game controller processor 402 [fig. 4] facilitates the receiving of a layout command transmitted from the game system 105, the layout command including a mapping relationship between key inputs to the application and virtual input messages from the virtual control server, i.e. mapping virtual alpha button as an alpha button input to the game system and assigning it to a particular region on the touch screen portion of the game controller 103, such that upon touching the virtual alpha button during game play, the game system recognizes an alpha button has been pressed by a game controller);

a user virtual button interface configured to generate a virtual button screen in which touch regions corresponding to the virtual buttons are visually displayed, and to display the virtual button screen on a touch screen of the mobile terminal (figures 1A-4 and paragraphs 0023-0040, wherein Porwal discloses a user virtual button interface, i.e. a touch screen, that renders a virtual button layout in which touch regions display corresponding virtual buttons);

a touch event filter configured to generate touch input messages that can be recognized as key inputs by the application, based on touch event objects that are generated from touch signals, of the touch regions corresponding to the virtual buttons, among touch signals input by the touch screen (figures 1A-4 and paragraphs 0023-0040, wherein Porwal discloses that upon a player touching a virtual button, such as the virtual alpha button, a “touch input message” is generated and transmitted to the game system that recognizes the touch signal as a alpha button being pressed on a game controller, as a particular key input

for the game; this would differ from merely touching an area of the touch screen not explicitly assigned to a button, such as a directly beneath the virtual alpha button); and

a client message interfacing unit configured to convert the touch input message into a virtual input message in a form that can be recognized by the virtual controller server, and to output the virtual input message (figure 4, where the game controller comprises a number of components including a processor and a communication module, where it is interpreted that a "client message interfacing unit" is at least the processor generating understandable data packets for the communication module to transmit to the game system 105, so as to enable the virtual control server of game system 105 to recognize virtual input messages of virtual buttons being touched).

Regarding claim 4, all of the above applies, further Porwal also discloses a virtual controller server as described above, operating on a computer so that the virtual controller server is allowed to remotely communicate with a virtual controller client running on a remote mobile terminal including a touch screen for remote key input on an application running on the computer (i.e. the game controller 103 having the touch screen interface with virtual buttons for operation of a game application running on the game system 105), where virtual controller server comprising:

a button setting generating unit configured to generate button setting information including mapping relationship between key inputs to the application and virtual input messages (layout commands as discussed above, generated by the game system 105 to be transmitted to the game controller 103);

a server message interfacing unit configured to transmit a setting message including the button setting information to the virtual controller client (i.e. the layout commands), and to receive a virtual input message from the virtual controller client, the virtual input message being generated based on a touch on the touch screen of the mobile terminal (i.e. touching of a virtual button generating a command input to the game system, as discussed above with claim 1); and

a key mapping unit configured to identify a key input value mapped to the received virtual input message based on the button setting information (i.e. the game system 105 determining which virtual button was touched according to the layout and received virtual input messages).

Regarding claim 9, all of the above applies, further Porwal a remote control system comprising the virtual control server a virtual controller client, the details of each clearly described above (figures 1A-5, abstract, and at least paragraphs 0023-0044), that is, the virtual control server extracts key input from virtual messages received from the virtual controller client for providing key input to the application (i.e. when a player touches a virtual alpha button, the game executes a command as if a game controller pressed an alpha button) and the virtual controller client operates on a mobile terminal (game controller 103) that has a touch screen for specifying an arrangement and attributes of virtual buttons based on a layout command received from the virtual control server, the layout being displayed on the touch screen display of the game controller, so as to enable players to touch virtual buttons that can be recognized by the game system 105 as having used physical buttons on a game controller.

Regarding claim 11, all of the above applies, further Porwal discloses a remote controller interfacing method using a virtual control server running on a computer (game system 105) and a virtual controller client running on a mobile terminal with a touch screen (game controller 103) for remote key input for an application running on the computer, the method comprising:

generating, by the virtual controller server, button setting information including mapping relationship between key inputs required by the application and virtual input messages to be transmitted by the virtual controller client, to be transferred to the virtual controller client (layout commands as described in previously above);

specifying, by the virtual controller client, an arrangement and attributes of virtual buttons based on the button setting information, and displaying, by the virtual controller client, a virtual button screen in

which the virtual button regions are visually arranged on the touch screen (figure 1A, where the layout command is used to display a layout of virtual buttons in touch screen virtual button regions);

generating, by the virtual controller client, touch event objects based on a touch signal generated by the touch screen, and further a touch input message based on the valid touch event objects (i.e. when a player touches a virtual alpha button, a "touch event object" is generated, such as the touching of such a button, which differs from touching merely an area of the touch screen not assigned a virtual button, thus when touching the virtual alpha button versus a non-assigned assigned area, the "touch input message" of a valid touch is generated);

transferring, by the virtual controller client, a virtual input message generated based on the touch input message to the virtual controller server (i.e. as described previously in detail, the touch input at the game controller 103 of a particular virtual button is sent as a virtual input message to the virtual controller server);

identifying, by the virtual controller server, a key input value mapped to the received virtual input message based on the button setting information (i.e. once the touch input message is received, the key pressed is identified by the processing application); and

transferring, by the virtual controller server, the identified key input value to the application (i.e. once identified, the key input command is moved to the game application for actual execution of a game command based on touching of a virtual button).

Claims 3, 8, & 15: Porwal discloses software facilitates such computer/virtual interactions between the virtual controller server (i.e. software running on the game system 105) and the virtual controller client (i.e. software running on the game controller 103), thus discloses a computer-readable medium storing a program that is run by the virtual controller client, the virtual controller server, so as to

implement the remote controller interfacing method described above (see at least paragraphs 0026, 0040-0042, 0047).

Claims 6, 7, 13, & 14: Porwal discloses the key mapping unit transfers a key input value to the application via a message transfer architecture of an operating system that runs the application on the computer, the architecture interpreted as an input and output application programming interface (paragraph 0039-0042).

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 5, 10, & 12 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Porwal, as applied to claims 1, 3, 4, 6-9, 11, & 13-15, where applicable, in view of Ohta et al. (U.S. Patent Application Publication No. 2012/0044177; hereinafter "Ohta").

Claims 2, 5, 10, & 12: Porwal discloses the invention substantially as claimed except for explicitly disclosing that the user virtual button interface activates an acceleration sensor of the mobile terminal so that movements of the mobile terminal can be detected. Essentially, Porwal discloses a game controller having no acceleration sensor. Regardless of the deficiency, acceleration sensors integrated into game controllers have been notoriously well known well before Applicant's invention. Ohta discloses a mobile terminal (i.e. a hand-held game controller) having a touch screen that displays one or more virtual buttons (i.e. game-specific input commands that are selectable via touch), such that this hand-held game controller incorporates an acceleration sensor 37. Ohta discloses that operation data of the hand-held game

controller, including data obtained from the accelerometer is transmitted to a game console for ultimately controlling a game executed at the game console (paragraphs 0125, 0146). Thus Ohta clearly teaches a mobile terminal having an acceleration sensor configured to obtain movements of the mobile terminal. The acceleration sensor is activated via the user virtual button interface insomuch that the hand-held controller enables utilization of the acceleration sensor. While Porwal fails to disclose the acceleration sensor, it would have been obvious to those skilled in the art to incorporate an acceleration sensor as taught by Ohta within the mobile terminal of Porwal as an additional sensor providing an additional means to control game play at game system 105 of Porwal, such as allowing more commonplace three-dimensional game control. In such a combination of Porwal and Ohta, it would have been straightforward to incorporate a means for the virtual controller client to obtain the operation data and transmit such data to the virtual control server, such as through an acceleration data filter configured to generate a movement input message that can be recognized as key input by the application, based on acceleration data that is generated based on an acceleration signal generated by the acceleration sensor (i.e. tilt right as a move or look right command during game play, equivalent to a right-arrow input on a direction pad; paragraph 0154); and a client message interfacing unit operable to convert the touch input message or the movement input message into a virtual input message in a form that can be recognized by the virtual controller server and to output the virtual input message (i.e. as described above with respect to at least claims 1, the client message interfacing unit converts the touch input messages to a format understandable by the virtual control server, likewise the same process need be performed for acceleration sensor data, to output a virtual input message thereby controlling an aspect of game play with the acceleration sensor, where, Ohta similarly discloses such a process as the formation of operation data transmitted to the game console).

Therefore, it would have been *prima facie* obvious to incorporate the commonplace acceleration sensor of the game controller as taught by Ohta within the invention of Porwal to provide the user of the

Porwal game controller an additional means to provide input to the game system, thereby utilizing the same input/output mechanisms in place to transmit operation data (i.e. touch inputs and acceleration sensor readings) to the game system for controlling a game play. Clearly Porwal and Ohta are in the same field of endevour and teach various aspects of a wireless/mobile game controller, such that any artisan having ordinary common knowledge in the gaming arts would have been motivated to produce such a combination. Not only would the Porwal invention enable dynamic virtual button layouts, but the combination would allow the player to provide three-dimensional tilt/orientation based input.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Applicant is directed to the attached "Notice of References Cited" for additional relevant prior art. The Examiner respectfully requests the Applicant to fully review each reference as potentially teaching all or part of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Milap Shah whose telephone number is (571) 272-1723. The examiner can normally be reached on M-F: 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melba Bumgarner can be reached on (571) 272-4709. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milap Shah/
Primary Examiner, Art Unit 3717